

N° 14,955

A.D. 1893



Date of Application, 4th Aug., 1893
Complete Specification Left, 4th May, 1894—Accepted, 9th June, 1894

PROVISIONAL SPECIFICATION.

Improvements in or connected with Boots and Shoes.

I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heels or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel tubes may be quite separate and distinct with separate valve to each or the same pneumatic tube may be arranged round both the sole and heel of the boot or shoe.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

By "pneumatic tube" I mean any kind of india rubber or like flexible air tube whether made with a separate outer covering portion or not so made.

Dated this 2nd day of August 1893.

CHARLES BOSWORTH KETLEY,
Agent for the Applicant.

[Price 8d.]

COMPLETE SPECIFICATION.

Improvements in or connected with Boots and Shoes.

I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heel or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in 15 an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube 20 under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel may be quite separate and distinct with separate valve to each.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the 25 edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

In order that my invention may be well understood I will now proceed to particularly describe the same by referring to the accompanying drawings on 35 which

Fig. 1 is a longitudinal sectional elevation of a shoe with inflated or pneumatic india rubber or like flexible tubes applied to the sole and heel of the same;

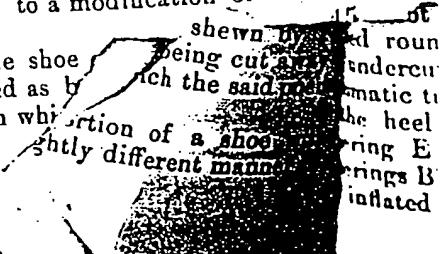
Fig. 2 is an inverted plan of the same with portions of the pneumatic tubes removed so as the better to shew the fixing plates or frames of the same;

Fig. 3 represents in sectional elevation and in inverted plan the metal plate separately which secures the pneumatic tube to the heel of the said shoe;

Fig. 4 is a longitudinal sectional elevation of a portion of a shoe with the pneumatic tubes fixed to the sole of the same according to a modification of this invention and

Fig. 5 is an inverted plan of the heel portion of the shoe being cut away to more clearly shew the groove in the heel of the shoe in which the said tube fits;

Fig. 6 is a longitudinal sectional elevation of a portion of a shoe being cut away to more clearly shew the groove in the heel of the shoe in which the said tube fits;



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Fig. 7 is an inverted plan of the heel portion of the shoe shewn by Fig. 6 and with a portion of the pneumatic tube removed so as to shew the fixing plate.

The same letters of reference indicate the same or corresponding parts in all the figures of the drawings.

I will first describe my invention as illustrated by Figs. 1, 2 and 3. A is the sole of the shoe made of india rubber leather or other suitable substance. B¹ is the endless inner india rubber or like air tube of the sole portion of the shoe and B² is its outer covering of india rubber or canvas insertion like the inner air tube and outer covering of a pneumatic tyre for wheels. This outer covering B² is made to surround or almost surround the inner air tube B¹ and is made with two beads, marked respectively b¹ b², one along each edge which fit in the undercut recess c¹ of the thin metal plate or frame C which is by preference made of aluminium or some other light and thin sheet metal and fixed to the sole A by screws such as those shewn and marked d. It will be seen that the edges c² c³ are raised and turned towards each other so as to form the necessary undercut section under which the beaded edges b¹ b² of the outer covering portion B² fit so as to be firmly secured when the inner air tube B¹ is inflated. E¹ is the endless inner india rubber or like air tube of the heel portion F of the shoe and E² is the india rubber and canvas insertion outer covering of the same; G is the thin metal plate or frame which is pierced with a central hole g¹ and the edges g² g³ of the plate G are turned inwardly so as to form the necessary undercut section for the beaded edges e¹ e² of the outer covering E² to take under so as to be secured thereto when the inner air tube E¹ is inflated. The plate or frame G is secured to the heel as by screws d as shewn. It will be seen that the plate or frame G with its air tube E¹ and outer covering portion E² is (except as to shape) similar to the plate or frame C with its inner air tube B¹ and outer covering portion B². Formed with the inner air tube B¹ there is a short tube b³ which passes through a hole in the outer covering portion B² and is connected to one branch of the valve H, to the other branch of which a small india rubber air tube e³ formed with the inner air tube E¹ is fixed. This valve H may be similar in construction to those used for pneumatic tyres for connecting to the pump to inflate the air tube so that by means of this valve both air tubes E¹ B¹ are inflated simultaneously.

When it is desired to remove the metal plates or frames C and G with the air tubes from the shoe the air tubes B¹ E¹ have first to be deflated by allowing the air to escape through the valve H and then the air tubes with their outer coverings B² E² will be free to be removed from the plates C and G and the latter be removed from the sole A and heel F by taking out the screws d. In the way the plates and air tubes can be refixed on the shoe by first fixing the plates C and G by screws d and then placing the air tubes B¹ E¹ within their respective outer covering portions B² E² and then placing the outer covering portions in position on the plates so that the beaded edges of the outer covering B² E² engage under the edges of the plates as shewn; then when the air-tubes are inflated the shoe will be ready for use.

I prefer to employ one valve H which is common to both air tubes B¹ E¹ but it is evident that if desired a separate valve may be used for each air tube and of the valve H which is common to both.

The modification of my invention shewn by Figs. 4 and 5 the plates or shoe is moulded or otherwise made with an undercut groove a¹ sole and of similar shape to the groove c¹ in the plate C and in e a¹ fit the beaded edges b¹ b² of the outer covering B² of the shoe; and there is a similar groove f¹ running round the underside between the ribs f² f³ for the beaded edges e¹ e² of the outer coverings so that the air tubes B¹ E¹ and their outer coverings may be secured to the sole A and heel F when the inner air tubes are described with reference to Figs. 1, 2 and 3.

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In the modification of my invention shewn by Fig. 1, the coverings B² E² are each made with flanges as shewn, the covering B² is made with two flanges marked respectively J¹ J², which are fixed flat against the underside of the sole by the two plates I¹ I² conform with the shape of the sole and are fixed thereto by screws d passing through these plates at intervals e⁴ e⁵ and thus securing the air tube E¹ and its outer

Having now particularly described and ascertained the nature and in what manner the same is to be performed I wish that I am aware that prior to my said invention the soles of boots and shoes have been constructed so as to be inflated with air and therefore I claim as my exclusive right of so constructing the said soles and heels but

1. The application round the under sole of inflatable india rubber or like flexible outer coverings B² and heels of boots and shoes or between the same so as to form an elastic tread substantially as hereinbefore described and illustrated in the accompanying drawings.

2. For boots and shoes the india rubber or other like flexible outer coverings B² of the air tubes made with beaded edges adapted to engage in the undercut recesses in the plates or in the sole and heel of the boots or shoes so as to be secured thereto by the inflating of the inner air tube substantially as hereinbefore set forth.

3. For boots and shoes the india rubber or other like flexible outer coverings B² of the air tubes made with flanges adapted to be fixed against the sole and heel of the boots or shoes by metal plates substantially as hereinbefore described and illustrated in Figs. 6 and 7 of the accompanying drawings.

4. In boots and shoes making the india rubber or like soles and heels with undercut grooves such as a¹ f¹ for the beaded edges of the outer coverings B² and the inner air tubes to engage with substantially as hereinbefore described and illustrated by Figs. 4 and 5 of the accompanying drawings.

5. For securing the india rubber or other like flexible outer coverings and air tubes to the soles and heels of boots and shoes the thin sheet metal plate G made with their edges turned upwardly and inwardly so as to form undercut grooves for the beaded edges of the flexible outer coverings to engage with substantially as hereinbefore described and shewn.

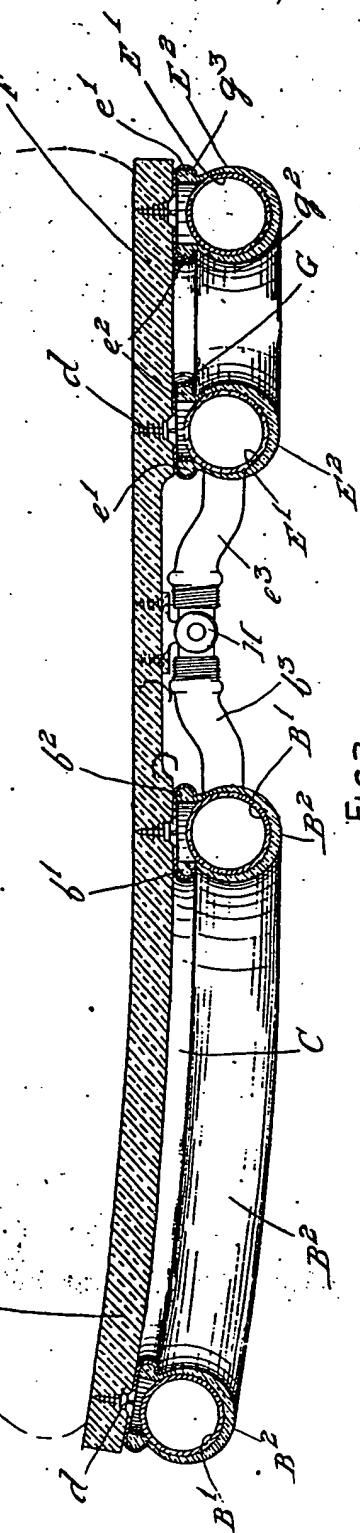
6. For boots and shoes, the combination of the metal plate C made with undercut groove, the outer covering B² made with beaded edges engaging with the undercut groove, and the inner air tube B¹ contained between the outer covering B² and the plate C the whole adapted for fixing to the sole of a boot or shoe so as to form an elastic tread substantially as hereinbefore set forth.

7. For boots and shoes, the combination of the metal plate G made with undercut groove, the outer covering E² made with beaded edges engaging with the undercut groove, and the inner air tube E¹ contained between the outer covering E² and the plate G the whole adapted for fixing to the heel of a boot or shoe so as to form an elastic tread substantially as hereinbefore set forth.

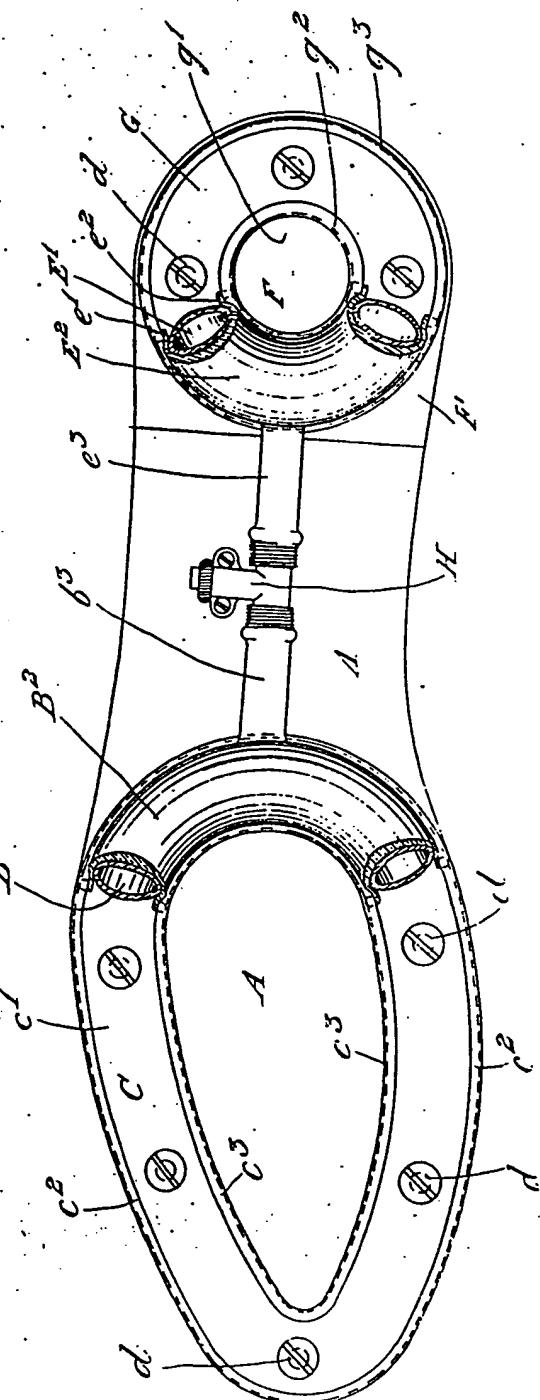
Dated this 3rd day of May 1894.

CHARLES BOSWORTH KETTLE
Agent for the Applicant.

[This Drawing is a reproduction of the Original on a reduced scale]



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N° 7441



A.D. 1906

Date of Application, 28th Mar., 1906

Complete Specification Left, 28th Sept., 1906—Accepted, 21st Mar., 1907

PROVISIONAL SPECIFICATION.

Improvements in Boots and Shoes

I, ROBERT EDWARD CRETNEY, of 1, Market Hill, Douglas, Isle of Man, Bootmaker do hereby declare the nature of this invention to be as follows:—

The objects of this invention are to provide boots or shoes which shall be softer and more resilient to the feet than hitherto, which shall be capable of supporting the insteps, and which can be made to raise a foot further from the ground, as is sometimes desired.

I in carrying out the invention I form the inner sole with a hollow space or spaces or recess either at the front part, the waist, or the heel, or all of them. The hollow space may be grooved out of the material of the sole or may be formed by blocking over the edges or otherwise. Within the hollow space I dispose small airtight tubes or compartments which may be filled with air, preferably at pressure so as to render the boot very springy. The hollow space is covered in by an outer sole secured by sewing or otherwise preferably to the edges of the inner sole and such outer sole may when desired be formed with a hollow space blocked out or otherwise formed so as to raise the foot off the ground. By making the waist recess deep and the air tube large the instep may be firmly supported without undue stiffness. The front part of the sole, the waist, and the heel may be formed in separate pieces sewed together, each or any of them having a hollow space therein as above mentioned. When air under pressure is used an inlet valve or valves to the air tube or tubes is used to allow the air to be forced in by a pump.

Dated this Twentyseventh day of March 1906.

W. B. JOHNSON,
Agent.

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COMPLETE SPECIFICATION.

Improvements in Boots and Shoes

I, ROBERT EDWARD CRETNEY, of 1 Market Hill, Douglas, Isle of Man, Boot Maker do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement and annexed drawing forming a part of this specification.

The invention relates to boots of the well known type which have pneumatic compartments arranged in the soles and filled with air under pressure and the objects are to provide boots or shoes which while being soft and resilient to the feet shall not be liable to excessive yielding, one either side of the foot shall be firmer in construction, the result

Credney's Improvements in Boots and Shoes.

the instep, and which can be made to raise a foot further from the ground as is sometimes desired. In carrying out the invention I arrange the chambers so that at least two of them shall be disposed side by side laterally of the sole and independent of each other.

On the drawing Fig 1 is a longitudinal section and Fig 2 a plan of a boot embodying my invention I form the inner sole *a* with hollow spaces or recesses *b*, *c*, *d*, at the front part waist and heel respectively. The two latter may if desired be omitted the sole being solid at those parts. The hollow spaces may be formed by blocking over the edges *e* of the sole, and sewing pieces *f*, thereto or they may be grooved out of a thick piece of leather. This renders the boot of very firm construction. *g* is the outer sole secured by sewing or otherwise to the edges of the inner sole or as shown to a welt *k*, sewn to the inner sole. The sole *g*, may be a single sole or when the boot is for a person of unequal length of legs the sole may, as shown, be formed with a hollow space *i*, blocked or grooved out to any depth required to raise the foot off the ground. The hollow space *i*, is provided with an airtight compartment *j* of rubber or other suitable material. *k* are airtight tubes or compartments of india-rubber or other suitable material independent of each other in the recesses *b*, *c*, *d*, which tubes are filled simultaneously but independently with air under pressure and render the boot very soft and springy at least two of the tubes *k* are arranged side by side laterally as shown so that pressure of the foot on one side cannot drive all the air to the other side of the boot. By making the waist recesses deep and the air tube large the instep may be firmly supported without any unduly stiffening the boot. The various tubes or compartments *j*, *k*, contain air under pressure supplied through inlet valves *l*, and inlet tubes *m*, all of which latter lead to a common tube *n* to which a force pump may be connected so that the tubes may be filled simultaneously but independently with air under any desired pressure. Instead of having only two tubes *k* arranged laterally several separate tubes or compartments may be so arranged in the front part *b* of the sole and dangerous rocking of the foot in the boot by excessive yielding at the sides of the sole is prevented. *o* is the usual upper leather. I am aware that tubes or compartments filled with air under pressure or otherwise have been arranged in the soles of the boots and also that valves to enable such tubes to be inflated have been used and I do not make a broad claim thereto.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

First. In combination in a boot or shoe an inner sole blocked or grooved out to provide one or more recesses several separate and independent airtight tubes or compartments within the recesses at least two of the tubes or compartments being arranged side by side laterally and inflatable simultaneously, an outer sole secured to the edges of the inner sole and an inlet valve to each tube a compartment with branch tubes to the valves to admit air from a force pump at pressure substantially as and for the purposes set forth.

Second. In combination with the parts under the first claim an outer sole having a recess formed therein and an airtight tube or compartment within the recess substantially as set forth.

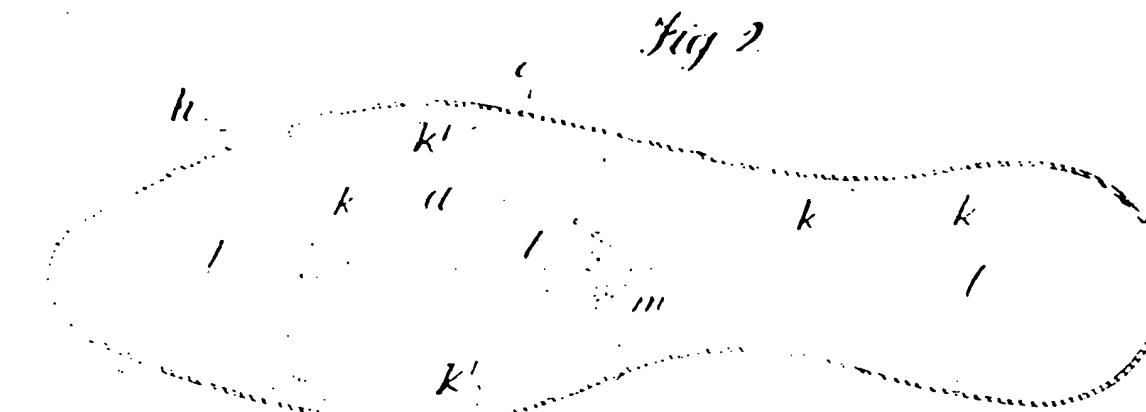
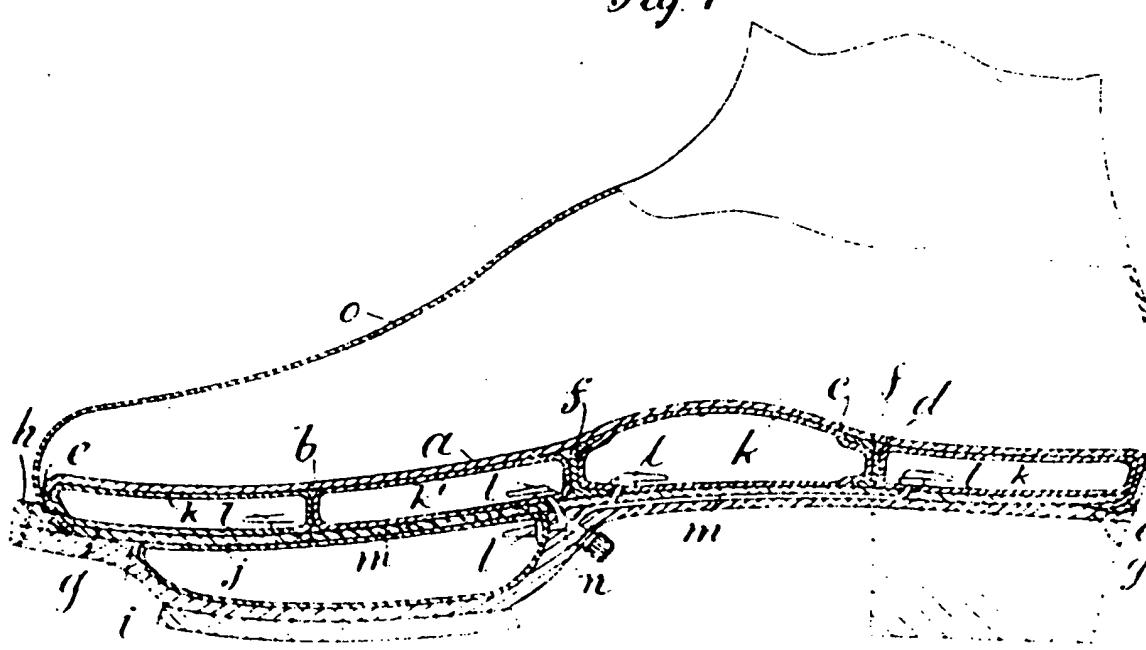
Dated this Twentyseventh day of September 1906.

W. B. JOHNSON, 50
4 Clayton Square Liverpool,
Agent.

A.D. 1906. MARCH 28. N° 7441.
CRETNEY'S COMPLETE SPECIFICATION.

1 SHEET.

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